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UNITED STATES ATOMIC ENERGY COMMISSION

LOS ALAMOS FAST REACTOR

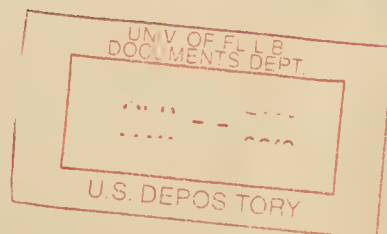
by
**David B. Hall
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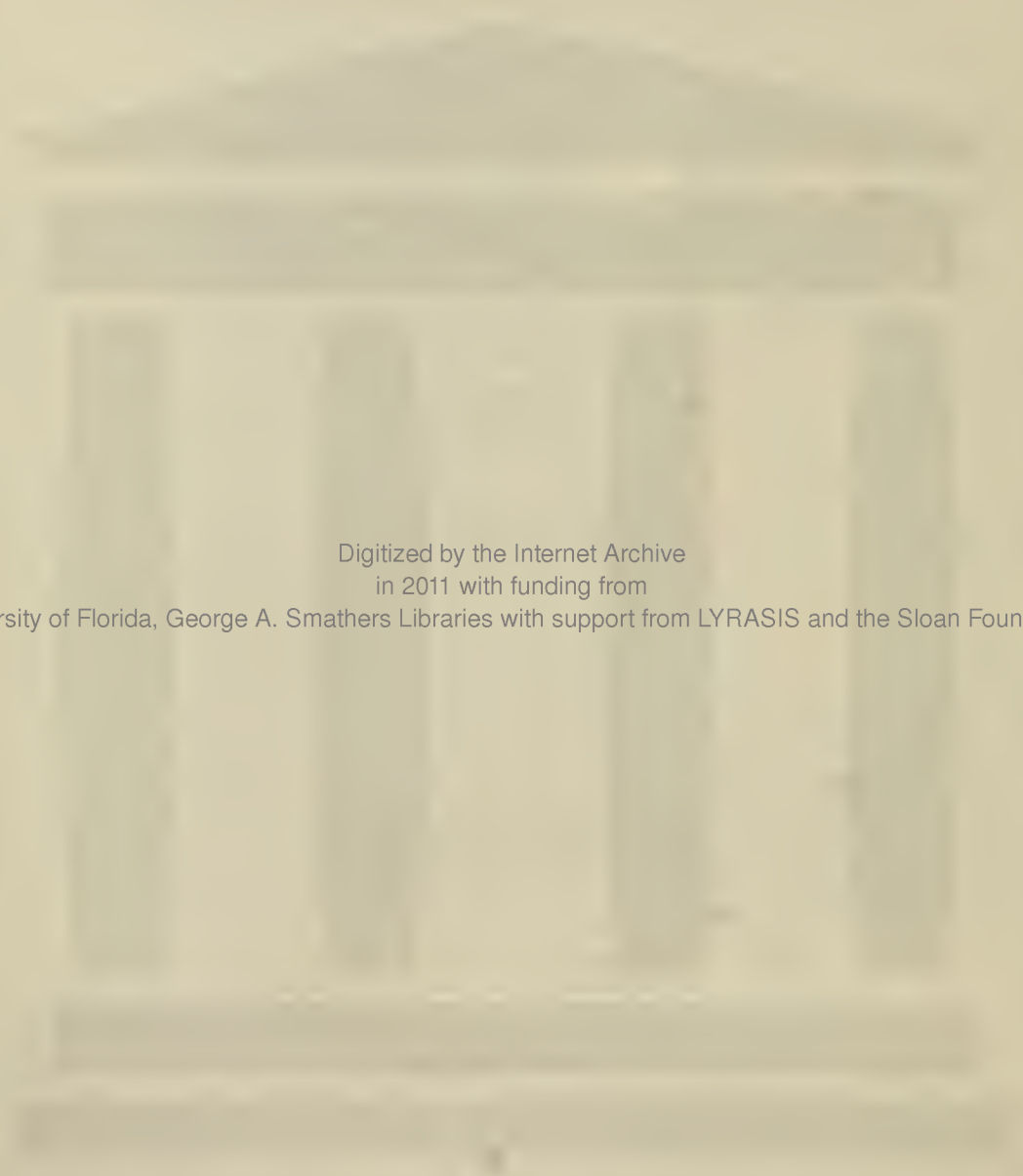
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LOS ALAMOS FAST REACTOR

By David B. Hall and Jane Hall

The Los Alamos Scientific Laboratory of the United States Atomic Energy Commission under the direction of Dr. Norris E. Bradbury, has announced the initial operation of a new type of neutron reactor which operates on the fission of plutonium by high energy neutrons. The fact that the fission process proceeds by use of high energy neutrons has led to the name of "fast" reactor. Since the other existing reactors in the United States use uranium as the active material and thermal or slow neutrons for producing fission, the fast reactor is new in the field of atomic energy developments.

Since the neutron and gamma radiations from nuclear reactors are of such high intensity that it is impossible to remain in the vicinity of an unshielded unit, the entire reactor is surrounded by a concrete and steel shield of sufficient thickness to reduce adequately the intensity of these radiations. Experiments can thus be carried out adjacent to the reactor without danger or inconvenience.

The reactor is now in the final construction stages, but has been operated successfully at low power since November 1946. It is planned by the Laboratory to have the reactor completed in the autumn of 1947, after which time it should be operating at a power level of several kilowatts and in use by the Laboratory as a source of high energy neutrons for nuclear physics investigations and as a pilot plant to investigate the possibilities of future high power atomic energy installations.

Numerous facilities are provided for irradiating materials in the neutron flux of about 10^{12} neutrons per cm^2 per second and for allowing intense beams of moderately high energy neutrons to emerge from the reactor. In order to increase the versatility, a graphite thermalizing column is provided on one side of the reactor so that both fast and slow neutrons are available for experimental studies.

